

Section 1. Introduction

1.1 Purpose

The Earth Science Data and Information System (ESDIS) Project is responsible for managing the design, development, and operation of the Earth Observing System (EOS) Data and Information System (EOSDIS), for definition and operation of the National Aeronautics and Space Administration (NASA) institutional support for EOS missions, and for coordination of domestic and international participating programs with the EOS mission. This document is the ESDIS plan for controlling the definition and development of interfaces used for the transfer of data and operations information among all these activities. The Interface Control Plan (ICP) provides the methodology for facilitating the preparation and approval of interface documents. The principal work of administering the ICP is accomplished by the Interface Control Working Group (ICWG). The plan will be updated as needed.

The ESDIS Project comprises several individual projects and contractual efforts and works with other projects to accomplish the EOS mission.

1.2 System Overview

The EOS Program is composed of the following:

- EOS AM mission series
- EOS PM mission series
- EOS Special Flights missions series
- EOS Chemistry missions series
- EOS Science
- EOSDIS

EOSDIS conducts the operations for the EOS missions; captures and archives the instrument and spacecraft data; and provides capabilities for processing, storing, advertising, accessing, and distributing instrument data and other products. EOSDIS users include environmental researchers, instrument developers, space and Earth scientists, educators, and the general public. EOSDIS is a widely distributed system with client-server-based computer systems. Communications networks will interconnect the computer systems, data sources, and data recipients.

EOSDIS is a system that will evolve over time and is based on existing discipline-specific Earth science data centers and data systems. Four different versions (numbered 0 through 3) have been defined for EOSDIS, representing successively greater capabilities for handling and managing the data from space and ground resources, i.e., spacecraft, instruments, and other investigations. Individual contracts often have multiple releases that are coordinated into the successive versions of EOSDIS. For examples refer to Figure 3-1, the EOSDIS Master Project Schedule. The core portion of the EOSDIS is composed of three major segments: the Flight Operations Segment

(FOS), the Science Data Processing Segment (SDPS), and the Communications and Systems Management Segment (CSMS). The Distributed Active Archive Centers (DAACs) carry out responsibilities for processing, archiving, and distributing EOS and related data and for providing a full range of user support. Computing facilities used by the EOS investigators are called Science Computing Facilities (SCFs) and are used to develop algorithms and models, to access services in EOSDIS, and to conduct scientific research. The EOS Data and Operations System (EDOS) and the EOSDIS Backbone Network (EBnet) systems provide data capture, initial processing, and communications services.

The EOS Ground System (EGS) makes a further distinction of EOS mission support capabilities. The EGS is “an operational assembly of facilities, networks, and systems, which collectively comprise the infrastructure necessary to acquire, transport, archive, process, distribute, and organize EOS and other NASA Earth science data and make them accessible to the broad science/user community.”

The EGS is composed of EOSDIS and institutional service providers and other participating programs that are not solely dedicated to the EOS program.

ESDIS is a project organization of the Goddard Space Flight Center (GSFC), which is leading the implementation effort for EOSDIS and coordinating the other support activities. The management team for EOSDIS includes project staff at GSFC and personnel at the DAACs.

1.3 Applicable Documents

The following documents are cited to establish the broad basis for understanding the scope and need for interface control and to present some of the general information about contributing projects and their specific approaches to interface control. For example, requirements documents are cited because they provide the basis for Interface Requirements Documents (IRDs), which in turn spawn Interface Control Documents (ICDs).

1. ECS document 193-208-SE1-001, *Methodology for Definition of External Interfaces for the ECS Project*, September 8, 1994
2. Martin Marietta document 23007586, *Landsat 7 System Interface Control Plan*, October 8, 1993
3. GSFC document 423-10-01-0, *Earth Science Data and Information System (ESDIS) Project Level 2 Requirements Volume 0: Overall ESDIS Project Requirements*, February 8, 1993
4. GSFC document 423-10-01-1, *Earth Science Data and Information System (ESDIS) Project Level 2 Requirements EOSDIS Core System (ECS) Volume 1, Revision A*, January 27, 1993
5. GSFC document 423-35-01, *EOS Data and Operations System (EDOS) and EOS Communications (Ecom) Requirements (ESDIS Level 2 Requirements Volume 2 through Change 20)*, April 14, 1994
6. GSFC document 423-10-01-5, *Earth Science Data and Information System (ESDIS) Project Level 2 Requirements Volume 5, EOSDIS Version 0*, January 25, 1993

7. GSFC document 423-10-01-6, *EOSDIS Backbone Network (EBnet) Requirements, Volume 6*, December 1995
8. GSFC document number TBD, *ESDIS Configuration Management Plan*, Draft, June 1996
9. GSFC document 505-10-34, *ESDIS Project Requirements Management Plan*, May 1996
10. GSFC document 505-10-22, *ESDIS System Management Plan*, Review Copy April 1996
11. IV&V document 0301, *EOSDIS Independent Verification and Validation (IV&V) Management Plan*, December 2, 1994
12. IV&V document 0302, *Independent Verification and Validation (IV&V) Plan*, December 15, 1994
13. IV&V document 1109, *EGS System Integration and Test Program Plan*, August 1996
14. GSFC document GSFC 170-01-01, *Execution Phase Project Plan for Earth Observing System, Revision A*, 1995
15. GSFC document 423-41-02, *Functional and Performance Requirements Specification for the EOSDIS Core System, Revision A, Change 12*, July, 1995
16. GSFC document 560-EDOS-0202.0001, *Earth Observing System (EOS) Data and Operations System (EDOS) Functional and Performance Specification*, December 18, 1992
17. GSFC document 515-4FRD/0294 (CSC/TR-94/6084), *EOS Test System (ETS) Functional and Performance Requirements*, December 1994
18. GSFC document, *EOS Ground System Integration and Test Philosophy White Paper*, March 1995

1.4 Document Overview

Following this introduction, Section 2 identifies and categorizes interfaces between the ESDIS Project and other projects and organizations, between EOSDIS and the systems provided by other organizations, and among interfaces internal to EOSDIS components/elements/subsystems. Four major categories of interfaces are defined, with Flight Projects, External Organizations, EOSDIS Projects and Contracts, and NASA Institutional Support Systems (NISS). The planned and existing interface definition documents are identified, along with the responsible producer and applicable participants who will develop each document. The EOSDIS Versions for when each document is required are identified.

Section 3 defines the ESDIS interface control process. It presents the roles and responsibilities of organizations and participants, and it describes the process to be used for coordination of interface documents development, as well as the flow of the interface documentation for review and approval.

Appendix A shows the IRD annotated outline; Appendix B gives the external ICD annotated outline; and Appendix C displays examples of the schedules and parameters that will be used to

track the development progress of each document. A list of Abbreviations and Acronyms is also included.

This page intentionally left blank.